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AUTHOR Mossholder, Kevin W.
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ABSTRACT

The effect of externally-mediated goal setting on intrinsic motivation was examined using a laboratory assembly task. College male subjects (N=80) were randomly assigned in a factorial design including two conditions of goal setting (assigned vs. no goals) and two conditions of initial task interest (interesting vs. boring task). The results show that under interesting task conditions, assigning specific, difficult goals reduced subsequent task interest, persistence, and satisfaction with the task, while under boring task conditions assigning specific difficult goals increased subsequent task interest only. Findings are discussed in terms of their relevance for the application of goal setting in work contexts and the importance of the task in moderating the impact of goal setting. (Author)

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# THE EFFECTS OF EXTERNALLY-MEDIATED GOAL SETTING ON INTRINSIC MOTIVATION

by

Kevin W. Mossholder

Auburn University

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# The Effects of Externally-Mediated Goal Setting on Intrinsic Motivation

Students of organizational processes have generally considered the notion of a goal within the framework of two distinct perspectives. Goals have been referred to by some as desired states of future affairs (Etzioni, 1964), while others have defined goals as constraints placed on behavior as a result of decision processes (Simon, 1964). Because of the potential of goal setting as an applied motivational technique, a large amount of research has attempted to confirm that setting goals does lead to the organizationally desirable state of increased employee productivity. Consistently, research both in the laboratory (Locke, 1968; Umstot, Bell, & Mitchell, 1976) and in field setting (Latham & Yukl, 1976; Latham, Mitchell, & Dossett, 1978) has shown that goal setting is an effective means of enhancing employee productivity. However, comparatively few research efforts have considered the dysfunctional effects that would be anticipated to the degree that goal processes introduce dimensions of behavioral constraint.

One means of further examining <u>externally-mediated</u> goal setting for potential negative effects is to consider it in conjunction with the dynamics of self-determination and personal control. A theoretical framework that is useful for making this consideration has been proposed by Deci (1975) in his Cognitive Evaluation Theory. The theory basically states that task behavior that permits an individual to feel competent and self-determining is intrinsically motivated behavior. Moreover, it also suggests that external incentives can cause an individual to perceive the justification of work effort to shift from internal forces (e.g. intrinsic outcomes from task behavior) to external forces (e.g. piece-rate wages). This attributional shift results in

decreased feelings of personal control and limits the occasion for work to impart feelings of competence and self-determination, thus vitiating conditions necessary for intrinsically motivated behavior.

Though some researchers dispute aspects of Deci's general theory (Farr, 1976; Hamner & Foster, 1975) enough supportive evidence of this phenomenon has been found to warrant its serious consideration (Pinder, 1976; Pritchard, Campbell, & Campbell, 1977). Moreover, some research suggests that Deci's theoretical propositions though examined largely in connection with external incentives may extend to any process that causes decreased feelings of personal control (e.g. Fisher, 1978).

Although assigning a task goal is obviously different from providing a tangible reward, some dynamics involved in assigning work goals could act to mitigate subsequent intrinsic motivation. In a work context, a common motivational rationale underlies both behavior stimulated by external incentives and behavior stimulated by externally-mediated goals: the task is undertaken as a means of attaining a specific, relevant end. Goal directed behavior may become valued for its instrumentality in reaching the task goal rather than for the enjoyment attached to performing the task itself. There also exists the possibility that the act of assigning goals may readily be perceived more as a control strategy than a viable motivational technique, and performances pressures and/or constraints may accompany such perceptions (Lawler, 1973). To the extent that either of the above conditions occurred, it would appear that circumstances necessary for the existence of intrinsically motivated behavior would be reduced.

With regard to empirical evidence of this phenomenon, few studies exist which have examined goal setting and intrinsic motivation variables within

the same framework. One study that directly examined the interaction of these variables was performed by Amabile, DeJong, and Lepper (1976). In a laboratory study involving performance of an enjoyable word game, they examined the effects of goals, in the form of implicit and explicit time deadlines, on subsequent intrinsic task interest. Significant differences between deadline, no deadline task groups obtained for both behavioral and attitudinal measures of task interest. As expected, subjects in the deadline conditions showed decreased interest in the task, i.e. they were less intrinsically motivated by the task once goal deadlines had been imposed.

Despite these findings, other evidence exists which suggests that goal setting can influence positively variables generally associated with the notion of intrinsic motivation (e.g. Carroll & Tosi, 1970). This paradox can be explained in light of differences in the interest and challenge intrinsic to various types of tasks. Where goals can infuse challenge into uninteresting or unenriched task conditions, concomitant increases in task interest would be anticipated. For example, Locke and Bryan (1967) confirmed this expectation, discovering that assigning goals for boring laboratory tasks alleviated some of the boredom associated with performing the tasks.

Extrapolating from these exemplary studies, it appears that externally-mediated goals have the potential to decrease or increase intrinsic motivation, dependent on the presence of intrinsically motivating qualities in the task prior to goal assignment. The major objective of this study was to examine directly the relationship between externally mediated goal setting and intrinsic motivation. The conceptual approach taken was to create tasks that differed in intrinsic interest and examine the impact goal conditions on subsequent measures of intrinsic motivation. Two levels of task interest

and two goal setting conditions were combined, resulting in four experimental conditions: (1) high interest/goals set; (2) low interest goals set; (3) high interest/no goals; (4) low interest/no goals. Within this design, an interaction effect was hypothesized such that subjects working on an interesting task without externally-mediated goals would manifest comparatively higher subsequent intrinsic motivation than those working with goals while subjects working on a boring task without externally-mediated goals would manifest lower subsequent intrinsic motivation than those working with goals.

## Method

### Subjects

The subjects in this experiment were 80 college males recruited from introductory psychology on a voluntary basis. The mean age of the subjects was 19.3. Subjects were randomly assigned to the four experimental conditions.

### Tasks

An assembly task utilizing Erectorset parts was selected as the experimental task. Subjects in the interesting task condition constructed an asymmetrical "erectorcar" that took well over an hour to complete. Due to the irregular shape of the car, subjects could follow various assembly sequences requiring different combinations of various parts. Subjects in the boring task condition were required to join pairs of identical parts together two at a time. Models of both types of tasks (as appropriate for condition) were provided for subjects to refer to during assembly.

Pretesting of the two task conditions indicated that there were significant differences between the tasks with respect to task interest and enjoyment.

Procedure

Subjects reported to the experiment one at a time and upon arrival were informed that the experiment involved aspects of assembly work. Each subject listened to a standardized (by condition) instruction tape and were made aware that their behavior would be videorecorded.

The performance phase of the experiment was divided into three 14-minute segments. Subjects in the no goal condition were instructed to proceed at their own pace in constructing the appropriate type of task. Subjects in the assigned goal condition worked on separately established goals for each of the work segments. Separate segments were utilized to enable the subject to assess his performance and adjust subsequent work effort accordingly.

Goal specificity was operationalized by the exact number of performance units specified during each work segment. Goal difficulty was operationalized as an objective probability of success in goal attainment. The goal setting literature has generally defined a difficult goal as one for which there is a .13 probability of attainment (Frost & Mahoney, 1976; Locke, 1968).

After the third work segment, subjects were interrupted and informed the experiment would be halted temporarily until some videorecorded data were checked against some previously compiled data. The deception followed the typical procedure used in Deci's (1975) original experiments: subjects were given a "break" period during which they could continue task assembly, read, relax, etc. Subjects were informed that no work performed during the period would count in the official part of the segment. The experimenter, having engaged the video equipment prior to the interruption, then left the area. Upon his return, the subject was told the experiment was being ended and was asked to fill out the postexperimental questionnaire. Debriefing followed.

Measures

The following measures were utilized:

1. Task persistence--the amount of time subjects continued to work at the task during the break.

2. Task interest--two self-report 7-point Likert scale items pertaining to perceived interest and challenge.

3. Satisfaction with the task itself--two self-report 7-point Likert scale items pertaining to satisfaction and enjoyment of the task. The inter-rater reliability of the task persistence measure was .99 (N = 2). Alpha coefficients for task interest and task satisfaction measures were .77 and .86, respectively.

Analysis and Results

Multivariate analysis of variance (MANOVA) and univariate analysis of variance (ANOVA) were used to analyze data concerning the above variables. Preliminary analyses indicated that the experimental manipulations were successful. Subjects in the interesting task conditions perceived the task to be more satisfying and interesting, and exhibited greater persistence than did subjects in the boring task condition regardless of the goal condition in effect. Table 1 presents the intercell means for these variables, and Table 2 presents the results of the ANOVA procedures. With respect to the goal manipulations, subjects with assigned goals perceived their goals to be

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INSERT TABLES 1 AND 2 ABOUT HERE

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significantly more specific than subjects with no specific assigned goal, $F(1, 76) = 210.8$, $p < .001$. The actual proportion of subjects reaching their

Table 1

Summary of Experimental Cell Differences on

Task Interest, Satisfaction, and Persistence

| Variable | | Goal | | No Goal | |
|---|---|---|---|---|---|
| | | High Interest | Low Interest | High Interest | Low Interest |
| Task | M | 4.97 | 4.32 | 5.72 | 2.85 |
| Interest | SD | 1.04 | 1.39 | .75 | 1.46 |
| Task | M | 4.80 | 3.78 | 5.65 | 3.70 |
| Satisfaction | SD | 1.67 | 1.29 | .80 | 1.32 |
| Task[a] | M | 1.07 | .36 | 1.93 | .18 |
| Persistence | SD | 1.18 | .76 | 1.15 | .45 |

[a]Persistence measured in seconds; scores were transformed via log base 10 function due to heterogeneity of variance.

Table 2

Summary of Analysis of Variance for Task Interest, Satisfaction, and Persistence

| Variable | Source | df | MS | F | $\omega^2$ |
|---|---|---|---|---|---|
| Task | Goal | 1 | 2.63 | 1.84 | .01 |
| Interest | Task | 1 | 62.13 | 43.45** | .31 |
| | G X T | 1 | 24.75 | 17.31** | .12 |
| | error | 76 | 1.43 | | |
| Task | Goal | 1 | 3.00 | 2.59 | .01 |
| Satisfaction | Task | 1 | 44.25 | 35.15** | .29 |
| | G X T | 1 | 4.28 | 3.40[a] | .01 |
| | error | 76 | 1.26 | | |
| Task | Goal | 1 | 2.23 | 2.55 | .01 |
| Persistence | Task | 1 | 30.50 | 34.82** | .28 |
| | G X T | 1 | 5.27 | 6.00* | .04 |
| | error | 76 | .876 | | |

Note. MANOVA main effects for the above variables were: Goal F = 3.63, p = .02 and Task F = 28.33, p<.001, df = 3,74 both tests.

[a] p = .07

*p<.02

**p<.001

assigned goal was tabulated as a check on actual difficulty of the assigned goals. Fifteen percent (.15) of the subjects working on the interesting task and twenty-five percent (.25) of the subjects working on the boring task reached the goal. These proportions were close to the target difficulty level of .13 and were not significantly different from each other (Fisher exact test, $p = 23$), indicating the goal difficulty manipulation was successful.

A two-way MANOVA with task interest, satisfaction, and persistence as the dependent variables revealed a significant multivariate interaction, $F(3, 73) = 8.15$, $p < .001$. An examination of the cell means in Table 1 indicates that for each dependent variable, the means of the interesting task groups were larger when goals were not assigned while the means for the boring task groups were larger when goals were assigned.

Following the multivariate analyses, two-way ANOVA procedures were performed for each dependent variable to test for the hypothesized interaction effect. The results of these analyses are presented in Table 2. For both measures of subsequent intrinsic motivation, task interest and persistence, significant, goal x task interactions were found. The Tukey A procedure was used for tests of simple main effects in determining if the mean differences between groups within tasks were significant. With regard to task interest, the Tukey A procedure indicated that the difference between the goal and no goal groups within the interesting task condition was significant (.05) as were the differences between goal and no goal groups within the boring task condition ($p < .01$). Table 1 shows that these differences were in the predicted direction. With regard to task persistence, the Tukey A procedure indicated that the mean difference between the goal and no goal groups was significant

($p < .01$) only for the comparison made with the interesting task condition.

Although the ANOVA interaction effect was not significant, post hoc tests were conducted to gain further insight into the subjects' responses concerning task satisfaction. Using Tukey's A, a significant difference ($p < .05$) was found for the comparison between goal groups within the interesting task only.

## Discussion

The convergence of findings in the present study suggests that externally-mediated goal setting can have an impact on intrinsic motivation. The pattern of mean differences indicates support for the hypothesis that assigning specific, difficult goals interacts with task intrinsic motivation in such fashion as to reduce subsequent intrinsic motivation when the task is initially interesting and to increase it when the task is initially boring. The fact that the direction of mean differences held across all variables is reinforcing evidence of the interactive effect since rarely will the same pattern of differences be found for variables in a MANOVA (Tatsuoka, 1971). Closer analyses using ANOVA and post-hoc procedures revealed that the impact of assigned goals on subjects within the interesting task condition was more pronounced. Tests of both behavioral and attitudinal responses showed that assigning performance goals had a relatively negative impact on individuals working on the interesting task. In contrast, only for the attitudinal measure did ANOVA procedures confirm that assigning goals increases intrinsic motivation.

Some caveats to the study should be noted. The experiment was a laboratory study; thus, generalizability may be limited. Also the particular types of goals used were externally-mediated, specific, difficult, and quantitative.

Variations in the goal setting process in future studies could provide more information about the effect of other goal setting processes on intrinsic motivation. It should also be mentioned that some methodological flaws associated with the paradigm utilized in this study were not apparent. There were no performance differences between goal groups within task conditions, eliminating the "fatigue" explanation for differences in task persistence. Moreover, differences among groups appeared on both attitudinal as well as behavioral measures, eliminating the "operationalization" alternative explanation. These considerations aside, the research findings demonstrate that any consideration of the utility of assigning performance goals should recognize the potential effect this process may have on motivational factors inherent in the task itself.

The major implication is that the nature of the task can moderate the motivational impact of externally-mediated goals in work settings. Thus far, research on the specific issue has been limited: Prescribed and non-prescribed tasks (Frost & Mahoney, 1976); newly created vs. ongoing jobs (Umstot et al., 1976); research and development jobs (Dewhirst & Arvey, 1976). Future research might be directed toward determining which task characteristics interact or are affected by the establishment of external goals as well as determining the motivational importance of particular task-goal attributes vis-à-vis boring and interesting tasks. Standardized measures of task-goal attributes (Steers & Porter, 1974) and core job dimensions (Hackman & Oldham, 1975) exist which could be used for this line of research. Since some initial research efforts in this area do suggest that different task-goal attributes assume different motivational roles depending on the complexity of the task (Frost & Mahoney, 1976; Terborg & Miller, 1978) and uncertainty of the

task environment (Dewhirst and Arvey, 1976), it would appear that further research in this area would be fruitful.

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